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| 09/784,093      | 02/16/2001  | In-Duk Song          | 8733.398.00         | 3221             |

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EXAMINER

CHOWDHURY, TARIFUR RASHID

ART UNIT PAPER NUMBER

2871

DATE MAILED: 05/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/784,093

Applicant(s)

SONG ET AL.

Examiner

Tarifur R Chowdhury

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 7-9, 16 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 10-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. **Claims 1-3, 6 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (AAPA) in view of Terumoto, USPAT 5,530,570.**

4. The AAPA described in the present application discloses in pages 1-6 and shown in Figs. 3 and 4, discloses, a liquid crystal display device comprising:

- a liquid crystal panel (111) having a plurality of gate lines (117) and data lines (119) and a plurality of sub-pixels, wherein the gate lines (117) are arranged in a transverse direction and the data lines (119) are arranged in a longitudinal direction,

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wherein each sub-pixel is defined by the gate and data lines and corresponds to a color filter that has one of red, green, blue and white colors;

- a gate driver integrated circuit ( 113b) connected to the plural gate lines (117) for driving the gate lines, the gate driver IC arranged on a first side portion of the liquid crystal panel (111); and

- a data driver integrated circuit (115a) connected to the plural data lines (119) for driving the data lines, the data driver IC arranged on a second side of the liquid crystal panel (111).

The AAPA described in the present application differs from the claimed invention because it does not explicitly disclose that the color filters are stripe-shaped and a black matrix is arranged among the stripe-shaped color filters.

However, typically color filters are arranged in one of several patterns such as mosaic pattern, stripe pattern, triangle pattern etc, as evidenced by Terumoto. Further, as shown in Fig. 6(c) of Terumoto that the stripe-shaped color filters have an arrangement wherein color filters along the same data lines have the same color, and adjacent ones of color filters along the same gate line have different colors.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the display device of the AAPA by using stripe-shaped color filters to avail a known pattern.

Further, forming black matrix among stripe-shaped color filters is common and known in the art for several reasons such as to improve contrast and thus would have been obvious.

The AAPA described in the present application also discloses that the color filter has a white color and as to the white color being made of a transparent resin is common and known in the art and thus would have been obvious to avail a proven material.

Accordingly, claims 1-3 would have been obvious.

As to claim 10, the AAPA described in the present application also shows that each data driver IC (115a, 115b) arranged on a same one of a top side portion and a bottom side portion of the liquid crystal panel (111).

As to claims 6 and 12, using the data driver IC to drive adjacent odd and even numbered data lines is considered as intended use and thus would have been obvious.

As to claim 11, the AAPA described in the present application discloses that the liquid crystal display device comprises at least one tape carrier package connecting the at least one data driver IC to the liquid crystal cell.

As to claim 13, the AAPA described in the present application shows in Fig. 3 only one sub-pixel corresponding to a color filter that has red, green, blue and white colors and each data line is connected to a sub-pixel corresponding to one of the color filters. Further, it is known that a single liquid crystal display panel comprises a plurality of sub-pixels. Therefore, it would have been obvious to one of ordinary skill in the art that each data line is connected to a plurality of sub-pixels each corresponding to one of the color filters having a same color.

**5. Claims 4, 5, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Terumoto as applied to claims 1-3, 6 and 10 – 13 above and further in view of Shiba et al., (Shiba), USPAT 5,526,014.**

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6. The AAPA described in the present application differs from the claimed invention because it does not explicitly disclose the limitation such as using the gate driver IC to alternate polarity of a gate line driving signal either for each of the gate lines at each frame interval or for adjacent gate lines during a same frame interval.

Shiba discloses that if driving voltages of the same polarity are applied continuously to a liquid cell, electrochemical changes are generated in the pixel electrode and the counter electrode, deteriorating the sensitivity of display and luminance. In order to prevent this it is necessary to constantly invert the polarity of the voltage applied to the liquid crystal cell (col. 2, lines 29-40).

Shiba is evidence that ordinary workers in the art of liquid crystal would find a reason, suggestion or motivation to use gate driver IC to alternate polarity of a gate line driving signal either for each of the gate lines at each frame interval or for adjacent gate lines during a same frame interval.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use the gate driver IC of the AAPA to alternate polarity of a gate line driving signal either for each of the gate lines at each frame interval or for adjacent gate lines during a same frame interval so that the deterioration of sensitivity of the display and luminance is prevented.

### ***Response to Arguments***

7. Applicant's arguments filed on 03/27/03 have been fully considered but they are not persuasive.

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In response to applicant's argument that Terumoto singly, or in combination fails to teach or suggest that the color filters along the same data lines have the same color, and adjacent ones of color filters along the same gate line have different colors, it is respectfully pointed out to applicant that arranging color filters in different patterns such as stripe-shaped is common and known in the art as evidenced by Terumoto. Further, as explained above, Terumoto also shows that stripe-shaped pattern have color filters along the same data lines have the same color, and adjacent ones of color filters along the same gate line have different colors.

Therefore, the rejection was proper and thus maintained.

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

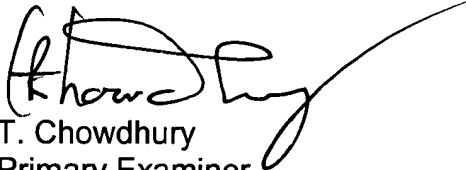
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tarifur R Chowdhury whose telephone number is (703) 308-4115. The examiner can normally be reached on M-Th (6:30-5:00) Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William L Sikes can be reached on (703) 305-4842. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7005 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.



T. Chowdhury  
Primary Examiner  
Technology Center 2800

TRC  
May 24, 2003